



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/991,466	11/21/2001	Coming Chen	UMC-98-048 CON	3828

7590 09/25/2003

William J. Kubida
HOGAN & HARTSON LLP
Suite 1500
1200 17th Street
Denver, CO 80202

[REDACTED] EXAMINER

BARRECA, NICOLE M

[REDACTED] ART UNIT [REDACTED] PAPER NUMBER

1756

DATE MAILED: 09/25/2003

10

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	09/991,466	Applicant(s)	CHEN ET AL.
Examiner	Nicole M. Barreca	Art Unit	1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 08 July 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 4-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 4-10 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. 09/075,597.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s). _____ .
2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) Notice of Informal Patent Application (PTO-152)
3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 6) Other: _____

DETAILED ACTION

1. Claims 4-10 are pending in this application.
2. The objections to the drawing have been withdrawn in response to the applicant's amendments to the specification.
3. The terminal disclaimer filed on 7/8/03 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of 6,169,012 and 6,486,040 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 4-6, 8 and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Jang (US 6,004,863).

6. Jang discloses a planarizing method for use shallow trench isolation (STI) and recessed oxide isolation (ROI). Pad oxide layer 32 and silicon nitride layer 34 are formed on semiconductor substrate 30 (col.12, 53-62). The substrate is etched to form narrow mesas 31a, 31b, 31c (small active regions) separated by narrow isolation

trenches 33a and 33b and wide mesas 31d (large active region) separated by wide isolation trench 33c (col.13, 54-67). Blanket trench fill dielectric layer 36 is formed of silicon oxide dielectric material using a high density plasma chemical vapor deposition HDP-CVD (col.14, 31-37). Patterned photoresist layers 38a and 38b are used as an etch mask to remove the center part of the oxide over the large active region down to the silicon nitride, while leaving oxide remaining on the edges of the large active region and on the small active regions. The photoresist is then removed (fig.10, 11). The remaining oxides 36a'-36e' are planarized to the height of the mesas using a buffered oxide etch (col.15, 15-col.16, 24).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jang as applied to claims 4 or 8 above, and further in view of Chen (US 5,969,425).

9. Jang planarized the HDP oxide layer by etching and does not disclose planarizing the oxide layer using chemical mechanical polishing (CMP). Chen teaches that a dielectric layer such as a HDP oxide is conventionally planarized using etching or CMP (col.1, 35-42). It would have been obvious to one of ordinary skill in the art to planarized the HDP oxide layer using CMP, instead of etching, in the method of Jang

because Chen teaches that etching and CMP are both conventional methods used in the art to planarized a HDP oxide layer.

Double Patenting

10. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

11. Claims 4-10 are rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-7 of prior U.S. Patent No. 5,958,795. This is a double patenting rejection.

Response to Arguments

12. Applicant's arguments, see p.4-5 section C, filed 7/8/03, with respect to the Weigand reference have been fully considered and are persuasive. The 35 USC 103 rejection of claims 4-10 has been withdrawn.

13. Applicant's arguments filed 7/8/03 regarding the Jang reference and the statutory double patenting rejection have been fully considered but they are not persuasive.

14. With respect to the 35 USC 102 rejection of claims 4-6, 8 and 9 and the 35 USC 103 rejection of claims 7 and 10 over Jang, the applicant argues that Jang does not

qualify as prior art because the present application claims priority to Taiwan Application No. 87105966, filed April 18, 1998. While it is true that a certified copy of this priority document was filed in parent application 09/075,618, applicant cannot rely upon the foreign priority papers to overcome this rejection because a **translation** of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

15. With respect to the double patenting application, the applicant argues that the scope of the claims are not the same because the exact phrase "to expose the silicon nitride layer therein" is not recited in claim 4 of the present application and the exact phrase "so that the oxide layer on a central part of the large active region is exposed", is not recited in claim 8 of the present application . While it is true that these phrases are not recited in the claims of the pending application, this omission does not change the scope of the claims. Claims 4-10 claim the exact same method as claims 1-7 of 5,958,795. The lack of these phrases does not change the method claimed in the present claims. Claim 4 recites a silicon nitride layer underlying the oxide layer, as does claim 1 of the patent. There is no other way that the oxide layer could be removed without exposing the underlying silicon nitride layer. This fact is confirmed by the applicant's specification on p. 6, l.6-7 where it is disclosed that the oxide on the central part is etched back until the silicon nitride layer is exposed. (This exact disclosure is also recited in the specification of 5,958,795 in col.3, l.29-30). The same argument applies for claim 8 of the present application with respect to claim 5 of the patent. There is no other way to form the partial reverse active mask on the oxide layer except to

expose the oxide layer on the central part of the large active region. See p.6, I.1-2 of the present application and the identical disclosure in col.3, I.21-24.

Conclusion

16. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicole M. Barreca whose telephone number is 703-308-7968. The examiner can normally be reached on Monday-Thursday (8:00 am-6:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 703-308-2464. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Art Unit: 1756

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Nmb
9/16/03

MARK F. HUFF
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700